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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/717,355

11/19/2003

Yuan-Chang Huang

64,600-122

8636

7590

12/02/2004

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EXAMINER

VU, HUNG K

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/717,355	Applicant(s) HUANG, YUAN-CHANG	
	Examiner Hung Vu	Art Unit 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 14-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Invention of Group I, Claims 1-13, in the reply filed on 08/23/04 is acknowledged. The traversal is on the ground(s) that the subject matter of all of claims 1-20 is sufficiently related that a thorough and complete search for the subject matter of the elected claims would necessarily encompass a thorough and complete search for the subject matter of the non-elected claims. This is not found persuasive because it is well settled that one application is one invention.

The requirement is still deemed proper and is therefore made FINAL.

Claims 14-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Invention, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in the reply filed on 08/23/04.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

3. Claims 2 – 8 and 10 – 13 are objected to because of the following informalities:

In claims 2 – 8 and 10 – 13, line 1, “A” should be changed to “The” for clarity.

In claims 2 – 4 and 11 – 12, line 2, “an electrically” should be changed to “the electrically” for clarity.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 – 5, 7 and 9 – 13 are rejected under 35 U.S.C. 102(b) as being anticipated by

Kim (KP 00171099).

Kim discloses, as shown in Figures 1 – 4, a microelectronic structure comprising:

a semi-conducting substrate (11) comprising circuits therein and a top surface;

at least one first conductive bump (16) situated on the top surface providing electrical communication to the circuits, the at least one conductive bump having a sidewall (18) formed of an electrically insulating material.

With regard to claims 2 and 11, Kim discloses the sidewall formed of the electrically insulating material at least partially covers a periphery of at least one first conductive bump.

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With regard to claims 3 and 12, Kim discloses the sidewall formed of the electrically insulating material covers completely a periphery of the at least one first conductive bump while leaving a top surface of the at least one first conductive bump exposed.

With regard to claim 4, Kim discloses the sidewall formed of the electrically insulating material at least covers a section of the sidewall in the periphery of the at least one first conductive bump that is juxtaposed to a second conductive bump situated immediately adjacent to the at least one first conductive bump.

With regard to claim 5, Kim discloses the electrically insulating material comprises organic material and inorganic material.

With regard to claims 7 and 13, Kim discloses the at least one first conductive bump is formed of a conductive metal selected from the group consisting of Au, Ag, Pt, Pd, Al, Cu, Sn and alloys thereof.

With regard to claim 9, Kim discloses, as shown in Figures 1 – 4, a microelectronic assembly comprising:

a semi-conducting substrate (11) having at least one conductive bump (16) situated on a top surface, the at least one conductive bump having a sidewall (18) formed of an electrically insulating material;

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an electronic substrate (22) having at least one conductive pad (21) situated on a top surface;

an anisotropic conductive film (20) sandwiched in-between the semi-conducting substrate and the electronic substrate, the anisotropic conductive film comprising at least one electrically conductive particle (19) providing electrical communication between the at least one conductive bump and the at least one conductive pad.

With regard to claim 10, Kim discloses the semi-conducting substrate is an integrated circuit chip and the electronic substrate is a printed circuit board or a glass substrate.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (KP 00171099).

With regard to claim 6, Kim discloses all of the claimed limitations except material of electrically insulating material. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the device of Kim having the materials as that claimed by Applicant, since it has been held to be within the general skill of a worker in the

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art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

With regard to claim 8, although Kim does not teach the height of the conductive bump, as that claimed by Applicants, however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the bump having a desired height, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung K. Vu whose telephone number is (571) 272-1666. The examiner can normally be reached on Mon-Thurs 6:00-3:30, alternate Friday 7:00-3:30, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (571) 272-1732. The Central Fax Number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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Vu

November 16, 2004

A handwritten signature in black ink, appearing to read "Hung Vu", written over a horizontal line.

Hung Vu

Patent Examiner